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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/808,315	02/28/1997	HIROYUKI KINOSHITA	247/PD-5385	6175

7590 10/20/2003

JOHN P. SCHERLACHER, ESQ.  
HOGAN & HARTSON, L.L.P  
500 SOUTH GRAND AVENUE, SUITE 1900  
BILTMORE TOWER  
LOS ANGELES, CA 90071

EXAMINER
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MENEFEE, JAMES A

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 10/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

08/808,315

Applicant(s)

KINOSHITA ET AL.

Examiner

James A. Menefee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 20-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.



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**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

This action is in response to the applicant's response filed 17 September 2003. The claims were not amended. Claims 20-22 are pending.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

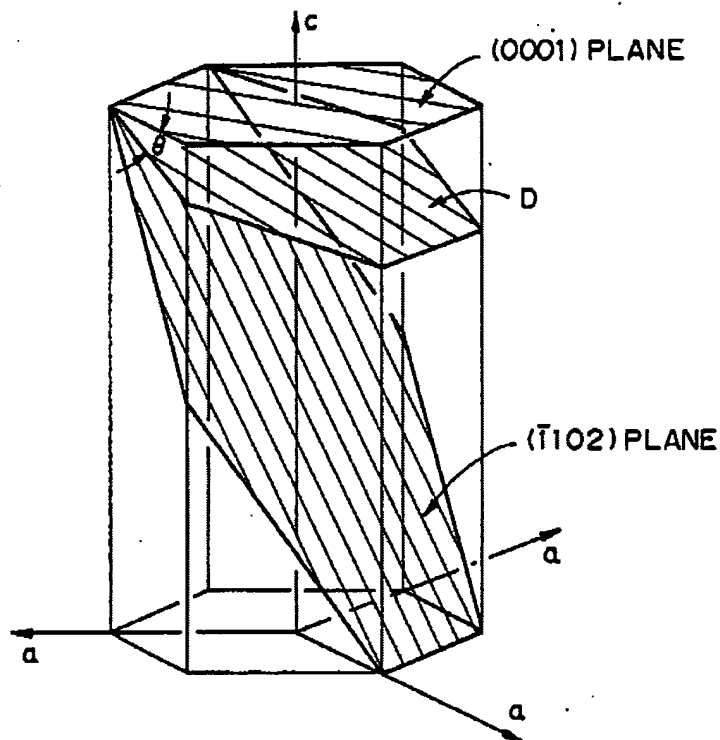
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi et al. (previously cited US 4,908,074) in view of Setsune (previously cited JP 61121042), and further in view of Iwasaki et al. (US 5,549,978).

Regarding claim 20, Hosoi discloses a sapphire monocrystal plate comprising a sapphire monocrystal having a major face, wherein the major face is a plane A or a plane C of the sapphire monocrystal (see Fig. 3 marked up below and discussion thereof, and col. 6 lines 55-66). It is not disclosed that there is a working reference plane on a peripheral edge of the plate that is substantially perpendicular or parallel to a plane R of the sapphire monocrystal. Setsune teaches that it is known to cleave an R plane of a sapphire monocrystal. It would have been obvious to one skilled in the art to cleave a sapphire monocrystal, such as that found in Hosoi Fig. 3, along the R plane as in Setsune, in order to form certain devices that require such a cleaving, such as Setsune's optical switch, as taught by Setsune. After such an obvious cleavage

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of the R plane, the edge of the plate will be the R plane, and will be a working reference plane on the peripheral edge of the plate.



Hosoi, Fig. 3

It is further not disclosed that the major surface, i.e. the C plane of Hosoi Fig. 3, has a surface roughness of less than 0.1 microns. Iwasaki discloses that a C plane of a sapphire crystal may be polished to a surface roughness less than 0.1 microns (col. 24 lines 45-51). It would have been obvious to one skilled in the art to do this so that the plane may be a mirror surface, as taught by Iwasaki. There are numerous applications known in the art where a plane of a sapphire crystal is formed as a mirror.

Regarding claim 21, the working reference plane is the R plane, and thus the angle therebetween is 0 degrees.

Claims 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hosoi and Setsune and Iwaskai as applied to claims 20-21 above, and further in view of Nitta et al. (US 5,403,773). The limitations of claims 20-21 are taught as above, but there is not disclosed a microcrack line on the major face parallel to the plane R for starting to cleave the plate. Nitta teaches that a wafer is scribed along cleavage lines (col. 3 lines 37-43). This scribing will inherently form a microcrack, as scribing by definition entails scratching a wafer to form a crack. Since it was shown above to be obvious to cleave along the R plane, then the microcrack formed by such scribing will necessarily be parallel to the R plane. It would have been obvious to one skilled in the art to scribe the device in order to perform the cleaving process, as taught by Nitta.

#### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. The applicant is claiming nothing more than a sapphire body having a face that is a C or A plane and an edge that is an R plane or parallel to an R plane, where the C or A plane has the specified roughness. All sapphire crystals will, by definition, include C, A, and R planes. It is shown herein that the faces and edges of a sapphire crystal may be as claimed.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (703) 605-4367. The examiner can normally be reached on M-F 8:30-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



JM  
October 8, 2003



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